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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,269	04/10/2007	Haoyi Wan	292986US8PCT	5615

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EXAMINER	
NICKERSON, JEFFREY L	

ART UNIT	PAPER NUMBER
2142	

NOTIFICATION DATE	DELIVERY MODE
04/18/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/584,269	WAN ET AL.	
	Examiner	Art Unit	
	JEFFREY NICKERSON	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 April 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *26 September 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to Application No. 10/584,269 filed nationally on 10 April 2007 and internationally on 24 December 2004. Claims 1-6 have been examined.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: virtual connections #1, #2, #3, and #4. Applicant consistently refers to four virtual connections between Node X and Nodes A, B, C, and D (pg 11, last sentence – pg 12, first paragraph) with numerical identifiers throughout the specification. Differentiating between the numerical identifiers is paramount to understanding further calculations and route explanations (pg 12, paragraph 2 – pg 14, paragraph 1) as described in applicant's specification. However, in the corresponding figures being referenced (Figures 10 - 14), the applicant fails to distinguish and/or identify these virtual connections with numerical identifiers.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to under 37 CFR 1.72(b) because it contains implied phraseology. The first sentence of the abstract contains the phrase "The object of the present invention is to provide", which falls into the category of

implied phraseology and should be deleted. Correction is required. See MPEP § 608.01(b).

5. The title of the invention is objected to under 37 CFR 1.72(a) for failing to be as specific as possible. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Peer connection selection in a decentralized network based on neighboring physical link characteristics.

6. The disclosure is objected to because of the following informalities: grammar and spelling errors. Pg 11, lines 21-26 contain a spelling error (unite should be unit) and incorrect grammar ("included in the" is repeated twice on line 25). Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-5 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 1, applicant makes claim to a "node", but never states whether this node is a physical node based on hardware or a virtual node based on software. All the

units described in the claim are software based and applicant makes indication of any physical device as part of the node.

Regarding claims 2-5, these claims inherit the non-statutory subject matter of their parent independent claim 1.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. Claims 1-4 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Liu et al ("AOTO: Adaptive Overlay Topology Optimization in Unstructured P2p Systems", 04 December 2003).

Regarding claim 1, Liu teaches a node which newly joins a network formed by a plurality of nodes (Liu: pg 4187, Figure 2), the node comprising:

a virtual connection establisher unit configured to establish virtual connections with the plurality of nodes (Liu: pg 4186, section I, paragraphs 3-4 specify a newly connecting node goes out and identifies which nodes are its neighbors);

an average metric value calculator unit configured to calculate an average metric value of routes to the plurality of nodes via each of the virtual connections (Liu: pgs

4187-4188, section II, subsection B, all paragraphs specify that a new node identifies its neighbors and builds a cost table for logical neighbors);

a connection establisher unit configured to establish a connection with the node to which the virtual connection having the smallest average metric value is established (Liu: pg 4187-4188, section II, subsection B, paragraph 3 specifies the node only floods a message to the nodes with least cost (i.e. not non-flooding neighbors)).

Regarding claim 2, Liu teaches further comprising:

an acquirer unit configured to acquire node-to-node connection information of an adjacent node to any node forming the network, from the any node (Liu: pgs 4187-4188, section II, subsection B, paragraph 1 specifies the node exchanges a neighboring cost table with each of its logical neighbors); and wherein

the average metric value calculator unit is configured to calculate the average metric value in accordance with the node-to-node connection information (Liu: pgs 4187-4188, section II, subsection B, paragraph 2 specifies exchanged neighboring cost tables are incorporated into the algorithm for building the spanning tree , i.e. its message flooding strategy).

Regarding claim 3, Liu teaches wherein

the node-to-node connection information includes a node ID (node number) for identifying the adjacent node, a metric value (cost) of a route between the any node and the adjacent node, and the number of the nodes adjacent to the adjacent node (Liu: pgs

4187-4188, section II, subsection B, all paragraphs specifies that cost tables maintain a cost between itself and all logical peers and that these tables are exchanged between immediately adjacent neighbors; Therefore the received exchanged table inherently contains an entry for every logical node adjacent to the immediate neighbor, therefore the exchanged cost table contains the number of nodes adjacent to the adjacent node; pg 4187, section II, subsection C, all paragraphs specify a minimizing algorithm that determines optimal flooding routes which inherently must contain some type of node identifier so that the node knows which nodes are which, and in the pseudo code Liu uses an integer node number).

Regarding claim 4, Liu teaches wherein:

the metric value includes at least one of the number of hops, network bandwidth, communication costs, delay, load, MTU, or reliability (Liu: pgs 4187-4188, section II, subsection B, paragraph 1 specifies network delay is used for cost).

Regarding claim 6, this method claim comprises limitations corresponding to that of claim 1 and the same rationale of rejection is used, where applicable.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Liu et al ("AOTO: Adaptive Overlay Topology Optimization in Unstructured P2P Systems", 04 December 2003), and further in view of Traversat et al (US 2002/0147771 A1).

Regarding claim 5, Liu teaches wherein

the acquirer unit is configured to probe the for metric value information to be included in the node-to-node connection information (Liu: pg 4187-4188, section II, subsection B, paragraph 2 specifies probing neighbors for cost information).

Liu does not teach wherein the probing identifies a type of a metric value or a combination of metric values to be included in response information.

Traversat, in a similar field of endeavor, teaches wherein probing a peer for information identifies a type of configuration/status requested to be included in response information (Traversat: [0350]-[0356] specifies that various peer information properties may be queried, such as uptime, credentials, etc).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Traversat for requesting characteristics from another peer in the decentralized network. The teachings of Traversat, when implemented in the Liu system, will allow one of ordinary skill in the art to form greedy and dynamic cost tables by requesting information relevant to a node's own interests. One of ordinary skill in the art would be motivated to utilize the teachings of Traversat in

the Liu system in order to provide a more wholesome cost table, incorporating more variables into a cost equation and fleshing out its effectiveness.

Cited Pertinent Prior Art

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Bernstein et al ("Adaptive Peer Selection", February 2003) discloses a system and method for adaptive peer selection for connecting/downloading content in a decentralized network based on passive monitoring of downloading characteristics.

b. Kim et al ("Node selection for a fault-tolerant streaming service on a peer-to-peer network", 09 July 2003) discloses a system and method for selecting a node to connect/download from based on bandwidth information of the service/file provider and the effects of distributed small bandwidth selection versus centralized large bandwidth selections.

c. Ng et al ("Measurement-Based Optimization Techniques for Bandwidth-Demanding Peer-to-Peer Systems", 03 April 2003) discloses a system and method for peer connection/downloading selection based on RTT probing, 10KB TCP probing, and bottleneck bandwidth probing.

d. Traversat et al (US 2003/0002521 A1) discloses a system and method for bootstrapping a newly connecting node to a decentralized P2P network by using source queries and advertisements.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY NICKERSON whose telephone number is (571)270-3631. The examiner can normally be reached on M-Th, 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. N./
Jeffrey Nickerson
Examiner, Art Unit 2142

/Andrew Caldwell/
Supervisory Patent Examiner, Art Unit 2142